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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Denis JACOBY

Confirmation No.: 9181

Patent No.: 6,838,575 B2

Application No.: 10/688,297

Patent Date: January 4, 2005

Filing Date: October 17, 2003

For: CATALYTIC SYSTEM FOR  
ALDOL REACTIONS

Attorney Docket No.: 81455-5510

Certificate  
JAN 21 2005  
of Correction

**REQUEST FOR CERTIFICATE OF CORRECTION UNDER 37 C.F.R. § 1.322**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Patentees hereby respectfully request the issuance of a Certificate of Correction in connection with the above-identified patent. The corrections are listed on the attached Form PTO-1050, submitted in duplicate. The corrections requested are as follows:

Column 11:

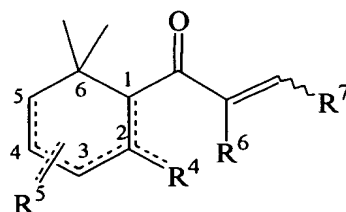
Line 18, change "wherein  $R^3$  has the same meaning" to -- wherein  $R^3$  has the same meaning --.

Line 22, change "group 4 consisting of Ti, Zr and Hf  $R^8$  represents" to -- group consisting of Ti, Zr and Hf,  $R^8$  represents --.

Support for the above changes can be found in claim 1 as amended on September 17, 2004.

Line 41, change "2,2,3trimethyl-3-cyclopentene-1-acetaldehyde." to -- 2,2,3-trimethyl-3-cyclopentene-1-acetaldehyde. --. Support for this change can be found in application claim 3.

Lines 45-53, delete formula (VI) and insert the following:



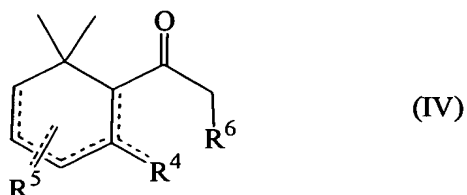
(VI)

21 JAN 2005



Column 12:

Lines 6-13, delete formula (IV) and insert the following:



Support for the changes to formulas (VI) and (IV) can be found in application claim 4.

Line 27, change “R<sup>0</sup> represents” to -- R<sup>6</sup> represents --. Support for this change can be found in application claim 5.

Line 32, change “1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-” to -- 1-(2,6,6-trimethyl-1-cyclohexen-1-yl)- --. Support for this change can be found in application claim 6.

Line 34, change 1-(2,6,6-trimethyl-3-cyclohexen-1-yl)-1-ethanone,” to -- 1-(2,6,6-trimethyl-3-cyclohexen-1-yl)-1-ethanone, --. Support for this change can be found in application claim 6.

The requested corrections are for errors that appear to have been made by the Patent Office. Therefore, no fee is believed to be due for this request. Should any fees be required, however, please charge such fees to Winston & Strawn LLP Deposit Account No. 50-1814. Please issue a Certificate of Correction in due course.

Respectfully submitted,

1/13/05  
\_\_\_\_\_  
Date

\_\_\_\_\_  
Allan A. Fanucci, Reg. No. 30,256

**WINSTON & STRAWN LLP**  
**Customer No. 28765**

212-294-3311

21 JAN 2005



UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO.: 6,838,575 B2  
DATED: January 4, 2005  
INVENTORS: Jacoby

Page 1 of 2

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

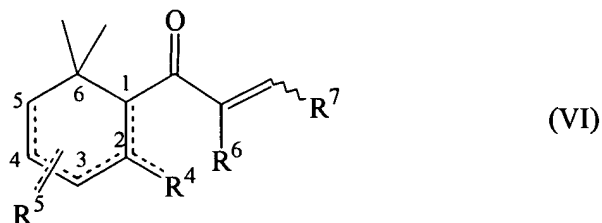
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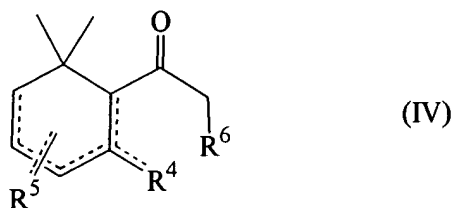
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Column 12 (continued):

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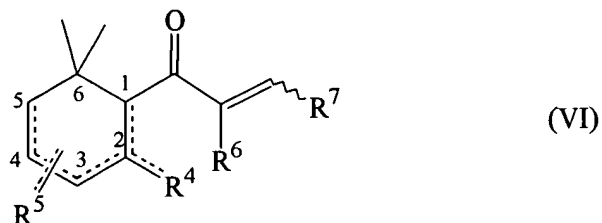
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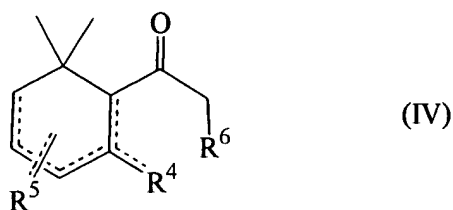
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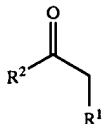
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11

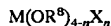
by reacting a starting ketone of formula:



wherein  $R^1$  and  $R^2$  have the same meaning as in formula (I),  
with an aldehyde of formula:



wherein  $R^3$  has the same meaning as in formula (I),  
in the presence of a metal complex of formula:

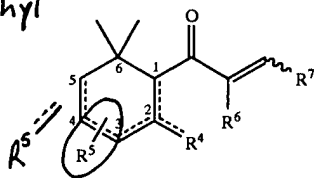


wherein M is a tetravalent metal cation selected from the group consisting of Ti, Zr and Hf,  $R^8$  represents a  $C_{1-6}$  linear or branched alkyl group, X represents a halide such as a Cl or F atom and the index n represents an integer from 1 to 3; and in the presence of a co-ingredient which is an alkyl or aromatic carboxylic acid anhydride containing 1 to 10 carbon atoms,  $BF_3$  or an anhydrous salt selected from the group consisting of the sulfates, chlorides and bromides of a metal cation, wherein the metal cation is selected from the group consisting of  $Li^+$ ,  $Na^+$ ,  $K^+$ ,  $Cs^+$ ,  $Mg^{2+}$ ,  $Ni^{2+}$ ,  $Ca^{2+}$ ,  $Zn^{2+}$ ,  $Fe^{3+}$  and  $Al^{3+}$ .

2. The process of claim 1, wherein the ketone of formula (II) is selected from the group consisting of gem-dimethyl-cyclohexanones, gem-dimethyl-cyclohexenones and cyclododecanone, and the aldehyde of formula (III) selected from the group consisting of formaldehyde, acetaldehyde, 2-propenal and 2-butenal.

3. The process of claim 1, wherein the ketone of formula (II) is methyl ethyl ketone and the aldehyde of formula (III) is 2,2,3-trimethyl-3-cyclopentene-1-acetaldehyde.

4. The process of claim 1, wherein the enone is of formula:



wherein:

the wavy line indicates that the stereochemistry of the  $C=C$  double bond is not defined and the dotted lines indicate a single or a double bond;

$R^4$  and  $R^5$  represent, simultaneously or independently, a hydrogen atom or a methyl, ethyl methylene or ethylidene group;

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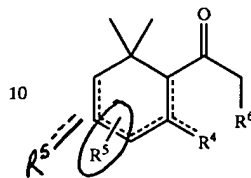
$R^6$  represents a hydrogen atom or a methyl group; and  
 $R^7$  represents a hydrogen atom or a  $C_1$  to  $C_4$  linear or branched alkyl or alkenyl group;  
the ketone is of formula:

(II)

5

(IV)

(III)



wherein  $R^1$  and  $R^2$  have the same meaning as in formula (VI),

and the aldehyde is of formula:

(V)



wherein  $R^4$  has the same meaning as in formula (VI).

5. The process of claim 1, wherein  $R^4$  represents a methyl or methylene group,  $R^5$  represents a hydrogen atom or a methyl or methylene group,  $R^6$  represents a hydrogen atom and  $R^7$  represents a methyl group.

6. The process of claim 5, wherein the starting aldehyde (V) is acetaldehyde and the ketone (IV) is selected from the group consisting of 1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-1-ethanone, 1-(2,6,6-trimethyl-2-cyclohexen-1-yl)-1-ethanone, 1-(2,6,6-trimethyl-3-cyclohexen-1-yl)-1-ethanone, 1-(2,2,6-trimethyl-3-cyclohexen-1-yl)-1-ethanone, 1-(2,2-dimethyl-6-methylene-1-cyclohexyl)-1-ethanone, 1-(2,6,6-trimethyl-1,3-cyclohexadien-1-yl)-1-ethanone, 1-(2,5,6,6-tetramethyl-1-cyclohexyl)-1-ethanone and 1-(2,2,6-trimethyl-3-methylene-1-cyclohexyl)-1-ethanone.

7. The process of claim 5, wherein the starting ketone (IV) is in the form of a mixture of isomers.

8. The process of claim 1, wherein M represents Ti(IV) or Zr(IV),  $R^8$  represents a linear or branched  $C_{1-4}$  alkyl group, X represents a Cl atom and n is 2 or 3.

9. The process of claim 1, wherein the co-ingredient is selected from the group consisting of acetic, propionic or butyric anhydride,  $BF_3$ , anhydrous  $Na_2SO_4$  or  $K_2SO_4$  and an anhydrous chloride or bromide of  $Mg^{2+}$ ,  $Fe^{3+}$  or  $Zn^{2+}$ .

10. The process of claim 1, wherein the tetravalent metal cation is Ti.

11. The process of claim 1, wherein the tetravalent metal cation is Zr.

12. The process of claim 1, wherein the tetravalent metal cation is Hf.

\* \* \* \* \*